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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Edward W. Jackson

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EXAMINER

LEUNG, JENNIFER A

ART UNIT

PAPER NUMBER

1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/795,972	Applicant(s) JACKSON ET AL.	
	Examiner JENNIFER A. LEUNG	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4,6 and 8-10 is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 11 is/are rejected.
- 7) ☒ Claim(s) 3,7 and 12-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 7, 2008 has been entered.

Claim Objections

2. Claims 3 and 7 are objected to because of the following informalities:

In claim 3, line 9: It appears that “the sulphur gases” (line 9) should be changed to --the sulphur dioxide gas--, as set forth in line 7.

In claim 7, line 2: “comprises reducing” should be changed to --reduces--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Plank et al. (US 911,328).

Plank et al. discloses an apparatus (FIGs. 1-3; page 1, lines 38-95) comprising: a burn chamber comprising one or more sidewalls (i.e., tube 5), a base (i.e., the bottom of receptacle 1,

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immediately below the tube **5**), a lid (i.e., cover **7**), and a gas outlet (i.e., at the top of the tube **5**, when cover **7** is removed/manipulated); and a hopper comprising one or more sidewalls (i.e., the sidewall of receptacle **1**), a base (i.e., the bottom of the receptacle **1**, adjacent the sidewall), and a lid (i.e., ring **4**), wherein the hopper substantially surrounds the burn chamber.

Although Plank et al. discloses that the material to be burned comprises “crude oil, pitch, and similar combustible materials” (page 1, lines 12-17), and not solid sulphur, the apparatus of Plank et al. still meets the claim, since expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) ; and the inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims. *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935); *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. In the instant case, the prior art structure would be capable of performing the intended use of burning solid sulphur.

Instant claim 1 structurally reads on the apparatus of Plank et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the

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claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Troutman (US 961,662) in view of Chinn (US 1,086,275).

Troutman discloses an apparatus (see FIG. 1; see also page 1, line 19 to page 2, line 18) comprising: a burn chamber comprising one or more sidewalls (i.e., defined by casing **16**), a base (i.e., the region of bottom **7**, immediately below the casing **16**), and a gas outlet (i.e., at the upper end of casing **16**); a hopper comprising one or more sidewalls (i.e., the sidewall of reservoir **5**), a base (i.e., the bottom **7**, excluding the region immediately below the casing **16**), and a lid (i.e., cover **20**), wherein the hopper substantially surrounds the burn chamber; and a housing adjacent the burn chamber (i.e., auxiliary wall **18**, defining an air chamber **19**; alternatively, the chimney **13**) to capture the radiant heat of the burn chamber.

The apparatus of Troutman is the same as the instantly claimed apparatus, except that Troutman fails to disclose a lid for the burn chamber, and a hatch in the lid **20** of the hopper.

Chinn, however, teaches an apparatus (see FIGs. 1-3; see also page 1, lines 28-98) comprising a lid (i.e., cap **22**) and a hatch (i.e., an opening in cover **7**, provided with a flange **10** and cap **11**). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a lid for the burn chamber and a hatch in the lid **20** of the hopper in the apparatus of Troutman, because the lid would provide a means for quenching the flame in

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the burn chamber, when desired, and the hatch would allow for the admission of fuel into the hopper, without requiring the removal of the cover, as taught by Chinn.

Although Troutman discloses that the material to be burned comprises a liquid fuel, and not solid sulphur, the modified apparatus of Troutman still meets the claim, since expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, and the inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. In the instant case, the prior art structure would be capable of performing the intended use of burning solid sulphur.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porak (US 585,404) in view of Jackson (US 6,080,368).

Porak discloses an apparatus (see FIGs. 1-3 and entire specification) comprising: a chamber **A** comprising one or more sidewalls, a base, a roof, and a gas outlet; a first conduit **S** connected to the gas outlet for conducting sulphur dioxide gas; and a second conduit **F²** for conducting a stream of water (i.e., from reservoir **G**), the second conduit **F²** comprising a restrictor (see FIG. 3, reduction in diameter in the direction of flow); wherein the first conduit **S** extends into the restrictor so as to point and terminate downstream in the restrictor. Porak further discloses that chamber **A**, “represents a stove or an appropriate apparatus for the production of sulfurous acid or other gases used in the saturation of fluids,” (lines 46-51). Porak, however, does not specifically disclose the claimed burn chamber for the generation of the sulfur

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dioxide gas from solid sulphur.

Jackson teaches a burn chamber **40** in which to combust solid sulphur (i.e., from hopper **20**), the burn chamber comprising one or more sidewalls **44**, a base **42**, a lid **46** and a gas outlet **60** (see FIGs. 1, 2; column 5, line 65 to column 6, line 42).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the burn chamber of Jackson for the chamber **A** in the apparatus of Porak, because the burn chamber of Jackson would have been considered a known and appropriate apparatus for producing the required sulfur dioxide gas. Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 550 U.S. --, 82 USPQ2d 1385 (2007).

Allowable Subject Matter

6. Claims 3, 4 and 6-10 are allowable (except for the minor informalities in claims 3 and 7). Claims 12-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 3 and 4, the prior art does not disclose or adequately suggest the claimed apparatus for combusting solid sulphur to produce sulphur dioxide gas, wherein said

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apparatus comprises a burn chamber to combust the solid sulphur and a hopper for holding the solid sulphur to be combusted, the hopper substantially surrounding the burn chamber; said apparatus being a component of a sulphurous acid generator apparatus, wherein the sulphurous acid generator apparatus comprises a first conduit connected to the gas outlet of the burn chamber, a second conduit for conducting a stream of water, and means for passively introducing the sulphur gases in the first conduit into the stream of water in the second conduit to generate the sulphurous acid.

Regarding claims 6-10, the prior art does not disclose or adequately suggest a sulphurous acid generator apparatus, wherein the apparatus comprises the improvement of the claimed burn chamber and hopper arrangement as discussed above, and a means for substantially eliminating any discharge plume generated by the apparatus.

Regarding claims 12-15, the prior art does not disclose or adequately suggest a sulphurous acid generator apparatus comprising the claimed means for substantially eliminating any discharge plume generated by the apparatus, provided in combination with a burn chamber, a first conduit, and a second conduit comprising a restrictor, wherein the first conduit extends into the restrictor so as to both point and terminate downstream in the restrictor.

Response to Arguments

7. Applicant's arguments with respect to claims 1, 2 and 5 have been considered but are moot in view of the new ground(s) of rejection.

8. The nonstatutory obviousness-type double patenting rejections located under items 11-16 in the Final Office Action (mailed April 7, 2008) have been overcome by Applicant's amendment to the claims. In particular, the cited secondary reference to Hinzke (US 1,421,232) fails to

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disclose the newly added limitation of a burn chamber which combusts "solid sulphur". Thus, said rejections have been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. LEUNG whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer A. Leung/
Primary Examiner, Art Unit 1797